AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A moldable implant composition for use in repairing a bone defect in a living organism, comprising:

a plurality of biocompatible synthetic non-polymeric granules, said granules constituting a major weight fraction of said implant composition and having an equivalent diameter of about 100 μm to about 4,000 μm;

a biocompatible polymer ~~on~~ coating at least a portion of said granules so as to form an implant mass comprising ~~said~~ a plurality of distinct granules coated with ~~and~~ said biocompatible polymer, said biocompatible polymer comprising about 4% to about 20% of the total weight of the implant mass; and

a plasticizer in said implant mass in an amount sufficient to condition at least a portion of said biocompatible polymer so that said implant mass is initially plastically deformable into a desired shape and then hardenable upon removal of at least a portion of said plasticizer from said implant mass.

2. (Previously Presented) A moldable implant composition as defined in claim 1, wherein the granules comprise a material selected from the group consisting of biocompatible ceramics, biocompatible glasses, and combinations thereof.

3. (Previously Presented) A moldable implant composition as defined in claim 1, wherein the granules comprise a material selected from the group consisting of silicon oxide, calcium sulphate, calcium phosphate, and combinations thereof.

4. (Previously Presented) A moldable implant composition as defined in claim 1, wherein the granules comprise a material selected from the group consisting of monocalcium phosphate monohydrate, monocalcium phosphate anhydrous,

dicalcium phosphate dihydrate, dicalcium phosphate anhydrous, tetracalcium phosphate, calcium orthophosphate phosphate, calcium pyrophosphate, α-tricalcium phosphate, β-tricalcium phosphate, hydroxyapatite, carbonate hydroxyapatite, apatite, bioglass, and combination thereof.

5. (Previously Presented) A moldable implant composition as defined in claim 1, wherein the granules are biodegradable.

6. (Original) A moldable implant composition as in defined claim 1, wherein said biocompatible polymer is biodegradable.

7. (Original) A moldable implant composition as defined in claim 1, wherein said biocompatible polymer is selected from the group consisting of poly(α-hydroxyesters), poly(orthoesters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarates), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes, poly(malic acid), polylactides, polyglycolides, poly(lactide-co-glycolide), polycaprolactones, poly(glycolide-co-trimethylene carbonates), polydioxanones, and co-polymers, terpolymers thereof and blends of those polymers.

8. (Original) A moldable implant composition as defined in claim 1, wherein the biocompatible polymer comprises poly(lactide-co-glycolide).

9. (Original) A moldable implant composition as in claim 1, wherein said plasticizer is selected from the group consisting of n-methyl-2-pyrrolidone, acetone, ethyl lactate, ethyl acetate, ethyl formiate, acetyltributylcitrate, triethyl citrate, lactic acid, citric acid tetrahydrofuran, toluene, alcohol and carbon dioxide.

10. (Original) A moldable implant composition as in defined claim 1, further comprising a biologically active substance.

11. (Original) A moldable implant composition as in defined claim 1, wherein said plasticizer is extractable from said implant mass when contacted with a hardener.

12. (Original) A moldable implant composition as defined in claim 11, wherein said hardener comprises water or a body fluid.

13. - 14. (Canceled)

15. (Currently Amended) The composite matrix of claim 43 ~~A moldable implant composition as defined in claim 1~~, further comprising a membrane on a surface of said ~~implant mass~~ composite matrix.

16. (Currently Amended) A moldable implant composition as defined in claim 1, in combination with ~~disposed in~~ a syringe that is capable of injecting the moldable implant composition into a bone defect.

17. - 40. (Canceled)

41. (Currently Amended) A composite implant mass comprising:

a structural component, the structural component comprising a plurality of biocompatible synthetic non-polymeric granules, the granules being regularly-sized, regularly shaped, and/or spherical, and the granules having an equivalent diameter of about 100 µm to about 4,000 µm;

a biocompatible polymer on at least a portion of the granules; and

a plasticizer in an amount sufficient to condition at least a portion of the biocompatible polymer so that the implant mass is initially plastically deformable.

42. (Previously Presented) The implant mass of claim 41, wherein the biocompatible polymer comprises 4% to 20% of the total weight of the implant mass.

43. (Currently Amended) A composite matrix comprising:

a structural matrix, the structural matrix comprising a plurality of biocompatible synthetic non-polymeric granules bound together, at least in part, by a biocompatible polymer; and

an open porous region comprising spaces or discontinuities between adjacent granules;

wherein the structural matrix does not contain any bone particles.

44. (Previously Presented) The composite matrix of claim 43, wherein the open porous region is filled with air or gas.

45. (Previously Presented) The composite matrix of claim 43, wherein the open porous region is filled with a liquid, solid particles, or a gel.

46. (Currently Amended) The composite matrix of claim 43, wherein the biocompatible polymer comprises 4% to 20% of the total ~~eight~~ weight of the composite.

47. (New) The moldable implant composition as defined in claim 1, wherein the granules are regularly-shaped, regularly-sized, and/or spherical.

48. (New) The moldable implant composition as defined in claim 47, wherein the granules have an equivalent diameter of about 100 μm to about 4,000 μm and the polymer coating has a thickness of about 1 μm to about 300 μm.

49. (New) The moldable implant composition as defined in claim 47, wherein the granules have an equivalent diameter of about 500 μm to about 1,500 μm, and the polymer coating has a thickness of about 5 μm to about 30 μm.

50. (New) The moldable implant composition as claimed in claim 1, wherein the implant composition in claim 1, wherein the implant composition does not contain bone particles.

51. (New) The implant mass of claim 41, wherein the granules have an equivalent diameter of about 500 μm to about 1,500 μm.

52. (New) The implant mass of claim 41, wherein the granules have a coating of the polymer and are distinct from one another.

53. (New) The implant mass of claim 52, wherein the coating has a thickness of about 1 μm to about 30 μm.

54. (New) The implant mass of claim 41, wherein the coating has a thickness of about 5 μm to about 30 μm.

55. (New) The composite matrix of claim 43, wherein the granules are regularly-sized, regularly-shaped, and/or spherical.